

BICYCLE ROUTE  
AND  
TRAILWAY SYSTEM PLAN  
OF THE  
GENERAL PLAN  
1976 - 2000

CITY OF LIVERMORE  
COUNTY OF ALAMEDA

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## PREFACE

### LIVERMORE BICYCLE ROUTE AND TRAILWAY SYSTEM PLAN

This plan is a combination and replacement of two previously existing plans, the Livermore Trailway System Plan and the Livermore Bicycle Route Plan. A need is seen for such a combination, because there is much repetition and duplication between the two plans. The repetition has been deleted from this plan, as have many of the details. Necessary details on trailway standards, exhibits, and a detailed map of Bicycle Routes can be found in the Supplemental Livermore Bicycle Route and Trailway System Report. At specific points in this plan, it has been noted when it may be particularly useful to refer to this report.

The attached map shows the major trails and bicycle routes to be included in the Livermore Bicycle Route and Trailway System. Other trails exist or are planned within the City and can be located on the more detailed Bicycle Route map found in the Supplemental Livermore Bicycle Route and Trailway System Report.

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## PART I

### INTRODUCTION TO THE BICYCLE ROUTE AND TRAILWAY SYSTEM PLAN

#### A. INTRODUCTION

There is found a public need and desire for a City Bicycle Path and Recreational Trailway System throughout our urban area. A network of Bicycle Routes would allow for an alternate transportation system for travel within the urban area of the City and for travel to nearby destinations outside of the City. Joined with the bicycle paths, the trailway system meets differing cultural and recreational interests by incorporating hiking or walking trails for the naturalist and evening stroller, permanent bicycle trails for the pleasure cyclist and the commuter on two wheels, and, in keeping with our western heritage, horse trails for recreational riding. It is envisioned that these trails will be extensive enough that one could ride a bike throughout the city, or hike, or ride a horse completely around the city.

To further enhance the trail system, the trailway shall provide, in appropriate places, open space areas, picnic facilities, developed sitting areas or plazas, bicycle parking, landscaping, and other appropriate facilities.

A given portion of the trailway system may contain one or more of the three trails mentioned in any combination or alignment. For example, a trailway may provide a hiking and biking trail only, or it may include hiking, biking, and horse trails as is the case with Quezaltenango Parkway, Livermore's first developed trailway. Also, a portion of the trailway may be minimum in development and maintained in a natural state or may be developed to the sophistication of a neighborhood park.

The trailway system shall utilize and link together arroyos, utility rights-of-way, public parks, public easements, and other lands owned by the City and other cooperating public agencies.

The trailway system will enable the citizen to traverse the city in an aesthetic and recreational environment, transporting the citizen to destinations by means other than the automobile on asphalt paving.

## PART II

### GENERAL TRAILWAY STANDARDS

#### A. INTRODUCTION

Two general types of trailway segments will interconnect to form the urban trailway system. These are the natural trailway and the developed trailway. The natural trailway will be developed minimally, and usually will be found

within the arroyos. The developed trailway will be located where segments of the trailway system are adjacent to or penetrate residential or generally developed neighborhoods and will also be found along major streets.

#### B. THE NATURAL TRAILWAY

The natural trailway shall generally occur within an arroyo or area of natural beauty where much development would be unnecessary, environmentally undesirable, or uneconomical.

The natural trailway may contain one or more of the three basic trails. The soil hiking trail shall normally be routed naturally by repeated public use. Seldom, if ever, will a paved hiking trail (sidewalk) be found in a natural trailway.

Horse trails shall also be determined by repeated public use within an arroyo or a natural trailway segment.

Bicycle trails within a natural trailway shall most often be asphalt with placement and route subject to City approval. The trails shall be typically combined with the bicycle trail occurring on high ground close to one of the arroyo's right-of-way boundary lines, and the other two trails occurring wherever they appear, usually within the arroyo basin. This will help ensure that the bicycle path will be protected from wash-out during the rainy season when the arroyo is in use as a flood control channel.

A natural trailway may contain spots of development such as picnic tables, barbecue pits, patches of irrigated turf, some play equipment at appropriate places, horse watering spots with places to tie a horse, and other appropriate elements of minor development.

Minimum widths for natural trailways have been established and can be found in the Supplemental Livermore Bicycle Route and Trailway System Report. There is no maximum width for a natural trailway.

#### C. THE DEVELOPED TRAILWAY

The developed trailway can be more variable in make-up than the natural trailway. It can have any combination of the three basic trails. All of the trails shall be in accordance with the standards set forth in this plan, Section III. Development can include picnic tables, open lawn areas, plazas and sitting areas, bicycle parking, etc., which will be located in the areas between the trails.

Minimum widths have been set for the two-trail developed trailway and can be found in the Supplemental Livermore Bicycle Route and Trailway System Report. There is no limitation as to the maximum width. It will usually contain a paved hiking trail (sidewalk) along with either a header board horse trail, or one of the two types of bicycle trails. The area in between the two trails shall be landscaped and irrigated or otherwise maintained in an aesthetic manner.

The only one-trail developed trailway presently envisioned is the asphalt bicycle trail, although others may become appropriate and their construction desired. Minimum widths can be found in the Supplemental Livermore Bicycle

Route and Trailway System Report. Landscaping shall also accompany a one-trail developed trailway.

### PART III

#### SPECIFIC TRAILWAY STANDARDS

##### A. HIKING TRAIL

1. Description: A hiking trail, as it applies to the Livermore Trailway System, can range from a naturally worn soil path synonymous with natural surroundings to a paved sidewalk synonymous with developed surroundings.

##### a. Soil Trail

The soil trail placement and alignment shall, in most cases, be determined by repeated public use. Natural determination of alignment shall be guided when necessary to protect vegetation, to prevent erosion, for reasons of safety, or so that a hiking trail does not undesirably cross a bicycle or horse trail except at suitably designated crossings. The guidance of a soil trail shall be accomplished with signing or header boards, or both.

Building and design regulations for header board soil trails have been set forth in the Supplemental Livermore Bicycle Route and Trailway System Report. This report should be referred to for specifications on construction.

##### b. Paved Trail

The construction of a trailway paved walking trail can be synonymous with the standard city sidewalk. Therefore, the Department of Public Works, City of Livermore Standard Details and Specifications shall prevail. Using the City's standard details and specifications as a construction guide shall in no way infer that the sidewalks within a trailway must follow a straight line course.

Width requirements for the paved walking trail can be found in the Supplemental Livermore Bicycle Route and Trailway System Report. Materials such as exposed aggregate, brick, or similar materials set in concrete would be preferred to keep in harmony with the intended park-like character. Other paving materials may be used at appropriate places, where the expense of using concrete for the trail cannot be justified or considered desirable.

##### B. BICYCLE TRAIL

1. Description: A bicycle trail, as it applies to the Livermore Trailway System, shall generally be asphalt or concrete paved. Most bicycle trails shall be improved with either of the above materials before being designated as City Bicycle Trails open to public use.

a. Asphalt Bicycle Trail

The alignment of the asphalt bicycle path shall be subject to City approval. Building specifications, including width requirements, can be found in the Supplemental Livermore Bicycle Route and Trailway System Report.

b. Concrete Bicycle Trail

The vast majority of bicycle trails within the Livermore Trailway System will be of asphalt, but there will be occasions when a concrete bicycle path will be appropriate or desirable. The concrete bicycle path shall conform to the same construction standards as the concrete hiking trail (sidewalk). Width requirements can be found in the Supplemental Livermore Bicycle Route and Trailway System Report. The alignment of the trail shall also be subject to City approval.

2. Route Designations: There is no set standard treatment that will be applicable to all segments of the Bicycle Route System, since each segment will have its own problems and restraints requiring individual solution. In most cases, the Bicycle Route will follow the public street, in the form of an on-street Bike Lane. If the bicycle is separate from the street, the cyclist is subject to substantial inconvenience and hazard at intersections, since the traffic signing or signalization is positioned for the traffic on the main roadway. So it is usually safer and more convenient to have on-street Bike Lanes. Off-street Bike Paths will normally be found in arroyos and other unusual areas where protective crossings such as bridges are provided at road crossings.

It is proposed that a Bicycle Route along a major street not be rigidly limited to on-street Bike Lanes or off-street Bike Paths. The design should be alternated to take advantage of the best features of each. Depending upon the area, a Bicycle Route can take one of the following forms:

a. Bike Lanes - Backing Lot Treatment

Major streets and highways in the City of Livermore are generally designed with backing lot treatment which limits access to the streets. Driveways are restricted and intersecting streets are staggered and spaced fairly far apart. Major streets provide for a lane adjacent to the curb, their primary function being emergency parking.

Because of limited access created by backing lot treatment, major streets generally are not convenient for parking use. So, where Bike Lanes are desired, the parking lanes can be posted "emergency parking only" without creating a hardship for the public. The parking lane provides a generous width as a one-way Bike Lane, and an occasional automobile parked under emergency conditions would not create a serious conflict for the cyclist.

b. Bike Paths in the Building Setback Area - Backing Lot Treatment

The zoning ordinance requires dwellings in some districts to be set

back a larger than normal distance from a major street. A portion of this distance might be acquired for a Bike Path as an easement or as part of the open space requirements of a development.

c. Bike Lanes - Eighty-eight (88) Foot Streets

Most major streets, existing as of 1974, are within an eighty-eight (88) foot right-of-way. There is insufficient room for Bike Lanes after the median is constructed. The only locations where adequate Bicycle Routes could parallel these streets are where one side has not been developed.

d. Bike Lanes Off Of Major Streets

(1) Bike Lanes - Collector Streets

Bike Lanes can be delineated on the City's standard collector street without restricting other functions of the street. Collector streets traverse residential areas and considerable on-street parking is usual. The remaining roadway is generous for the two lanes of automobile travel while assuring expeditious traffic flow and the utmost in safety for autos, pedestrians, and bicycles. Where Bicycle Routes are routed over collector streets, a one-way Bike Lane can be delineated on each side of the street while maintaining the desirable features cited above.

(2) Bike Lanes - Secondary (Residential) Streets

No special lane markings are considered necessary where Bicycle Routes are routed along secondary streets due to the normally low volume of traffic and the substantial width of the standard residential street. Residential streets in new areas will normally not be designated as Bicycle Routes, because they are laid out to discourage their use for through traffic. Thus, they would be used only over distances in cases such as an interconnection between an arroyo pathway and a major street or a recreational facility.

(3) Bike Lanes - Older Sections of the City

Sections of the City developed before 1950 are generally laid out in a grid pattern. Where Bicycle Routes are routed through these areas, it is convenient to avoid the principal streets because of their grid pattern. The widths of older residential streets are predominantly fifty-six (56) feet from curb to curb. Adequate widths are available for Bike Lanes on-street.

3. Transition From Sidewalk to Streets: With the separation of the bicycle from the automobile comes a new problem at such points where bicycle routes intersect with streets or where a shift in the bicycle route is required. In order to facilitate the transition and to avoid the creation of new hazards, it is proposed that ramps be utilized in accordance with the following:

a. Separate Bike Route to Street

The City of Livermore allows the option on major streets to provide for Bike Paths in the building set back areas, along with on-street Bike Lanes. Transition of the Bike Path from the set back area to the street will use the emergency parking lanes provided, which should allow for reasonably safe crossing of intersecting streets. Refer to the Supplemental Livermore Bicycle Route and Trailway System Report for a detailed drawing of the transition area.

b. Other Alternatives

Other alternatives, such as slot-type sidewalk ramps and full corner ramps were considered but were found objectionable, because they are both hazardous and costly.

C. HORSE TRAIL

1. Description: A horse trail, as it applies to the Livermore Trailway System, can range from a wide arroyo to ride freely within, a naturally worn trail through a trailway, to a compacted soil trail contained by redwood header boards within a developed trailway.

a. Natural Soil Horse Trail

In most cases, the natural soil horse trail placement and course shall be naturally determined by repeated public use. If guidance of the trail is necessary for the same reasons noted for hiking trails, the header board contained soil horse trail shall be used.

b. Header Board Soil Horse Trail

A header board soil horse trail shall usually occur and is required in a developed trailway. Design and construction standards for the header board soil horse trail have been set and can be found in the Supplemental Livermore Bicycle Route and Trailway System Report. In addition to these standards, an option which may be considered and utilized is using cinders or small gravel for the header board horse trail or a mixture of soil and cinders or gravel.

c. Horse Trail Street Crossings

Where the horse trail crosses a public street, the designer may, at his own discretion and with City approval, specify a special paving material such as bricks to be inlaid in the asphalt street.

D. TRAILWAY FENCING

Trailways shall not necessarily require fencing, but when it is required by the City, it shall at least be chain link. The chain link fence shall be in accordance with the City Standard Details and Specifications. Other types of fencing of better quality may be considered and utilized upon City approval. Fencing will normally occur along the boundary lines of a trailway. At times, ornamental fencing may be desired or required to divide the individual trails. These shall be subject to City approval.

E. TRAILWAY LIGHTING

Natural trailways shall not necessarily be night lighted. Developed trailways may be night lighted if normal street lighting is not sufficient, if lighting is required for law enforcement, or if lighting is desired for night use of the trailway.

F. TRAILWAY SIGNING

Signs on or near the trailway should be kept to a minimum, since they can detract from the "greenbelt" quality that a trailway is meant to establish. Signing will mainly take place when a city street cuts through a trailway, to warn autos of the presence of the trail. Signs will also be used to clearly delineate the trailway.

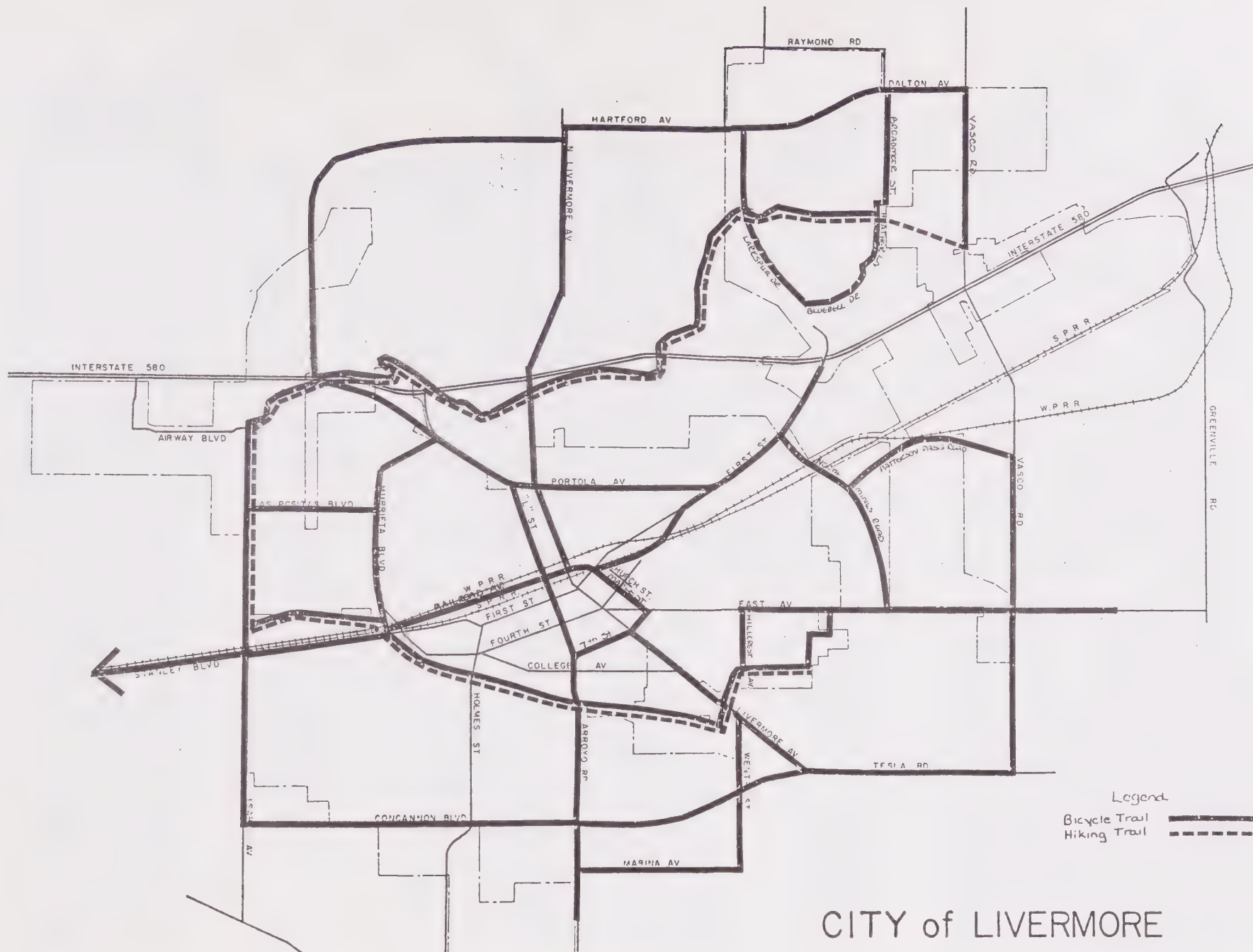
PART IV

IMPLEMENTATION

A. IMPLEMENTATION

Implementation of the trailway system allows for two methods. Most of the implementation programs will occur when private development takes place adjacent to a desired trailway site. The trailway will be constructed in conjunction with the development by the private developer. The second form implementation may take is acquisition of desired land for trailways by the City. City acquisition is a limited method of implementation due to decreasing funds in the City Capital Improvement Project Budget.

MAJOR TRAILS AND BICYCLE ROUTES



CITY of LIVERMORE

SUPPLEMENTAL  
BICYCLE ROUTE  
AND  
TRAILWAY SYSTEM REPORT

CITY OF LIVERMORE  
COUNTY OF ALAMEDA

ADOPTED BY  
CITY COUNCIL

RESOLUTION NO. 281-81

OCTOBER 26, 1981

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PART I

GENERAL TRAILWAY STANDARDS

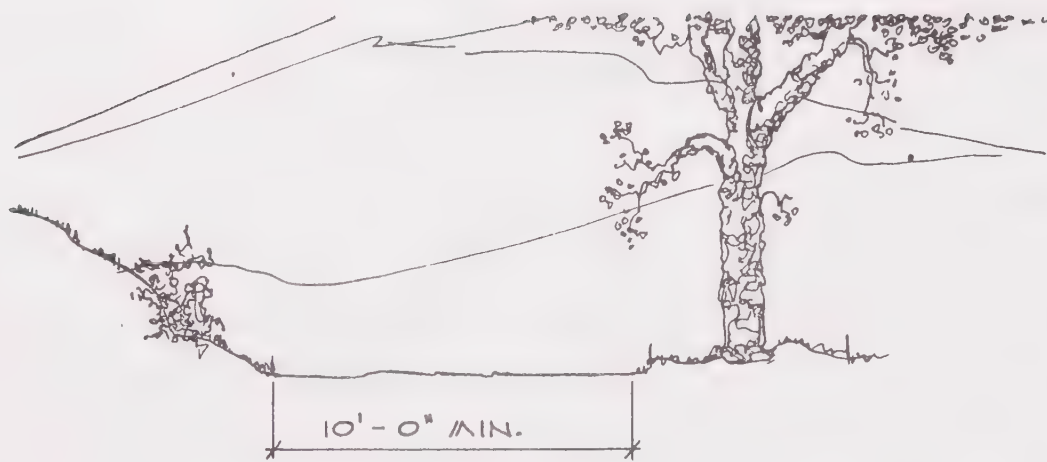
A. The Natural Trailway

There is no limitation as to the maximum width of a natural trailway. The minimum width of a natural trailway shall be eighty (80) feet when it contains all three trails, twenty (20) feet when it contains two trails, and ten (10) feet when the trailway only contains one trail.

B. The Developed Trailway

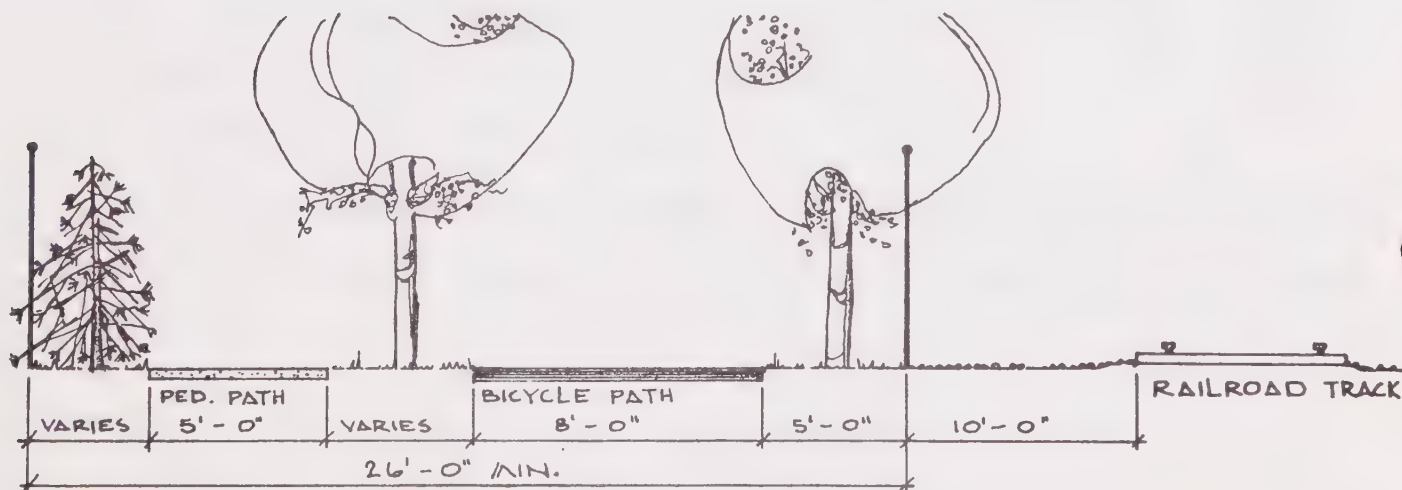
The three trail developed trailway segment shall be a minimum of fifty (50) feet. There is no limitation as to maximum width for the developed trailway.

Attached are drawings of typical cross sections of trails, showing various combinations that are possible in a natural or developed trailway.

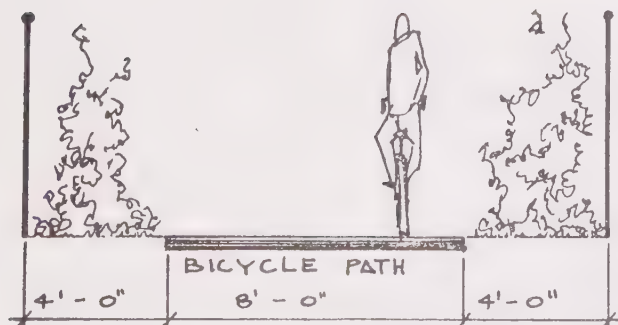


RIGHT-OF-WAY

NORTH HILLS HIKING TRAILWAY  
COLLIER CANYON HORSE PARKWAY

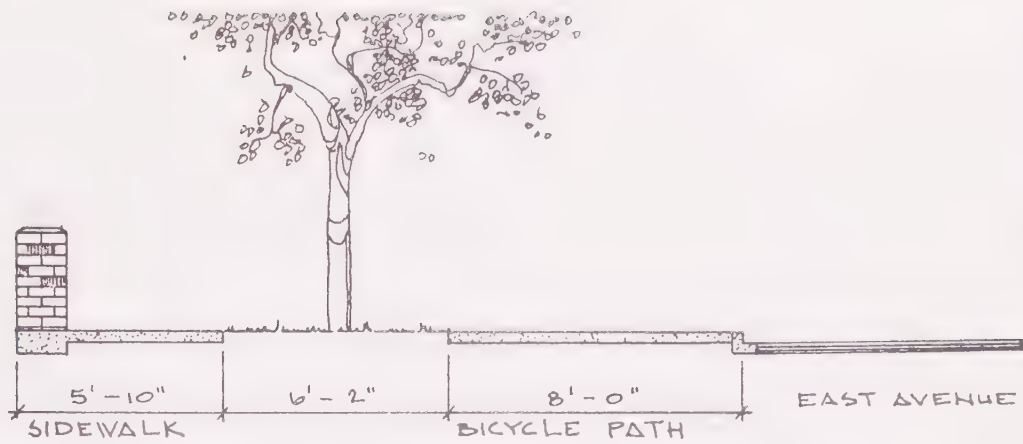


RAILROAD TRAILWAY

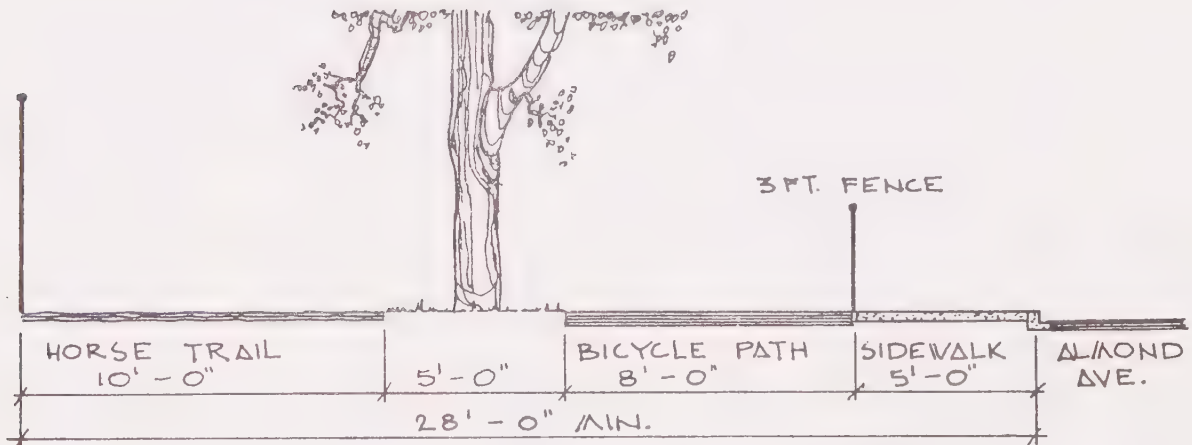


CITY CORE  
BICYCLE PARKWAY

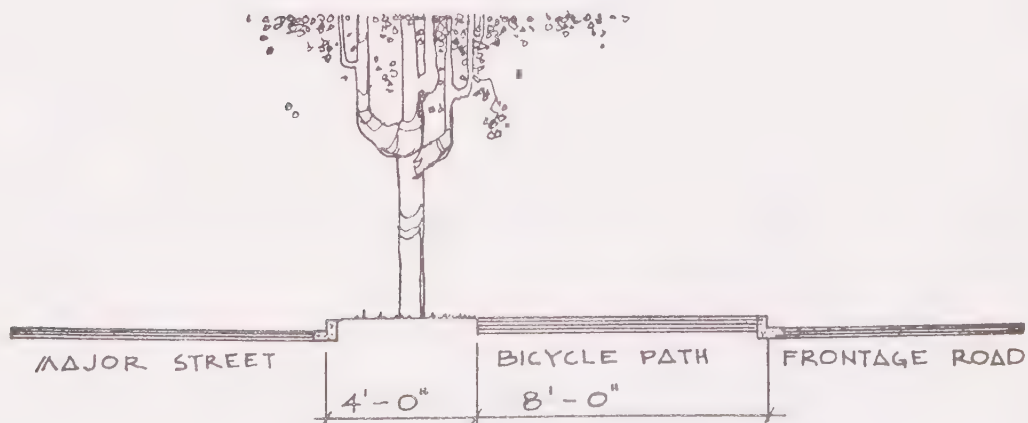
TYPICAL TRAILWAY  
CROSS SECTIONS



EAST AVENUE TRAILWAY

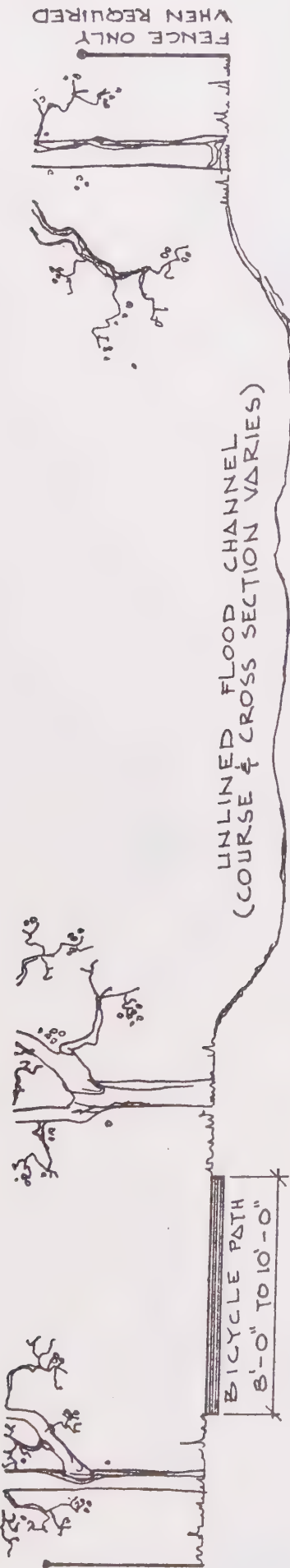


ALMOND AVENUE

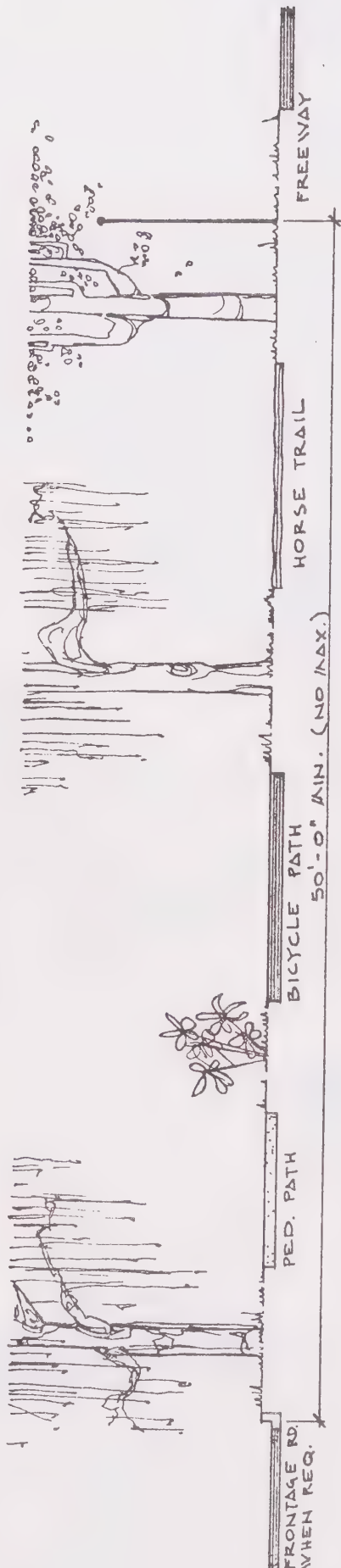


CONCANNON BLVD. TRAILWAY  
(EAST OF HOLMES)

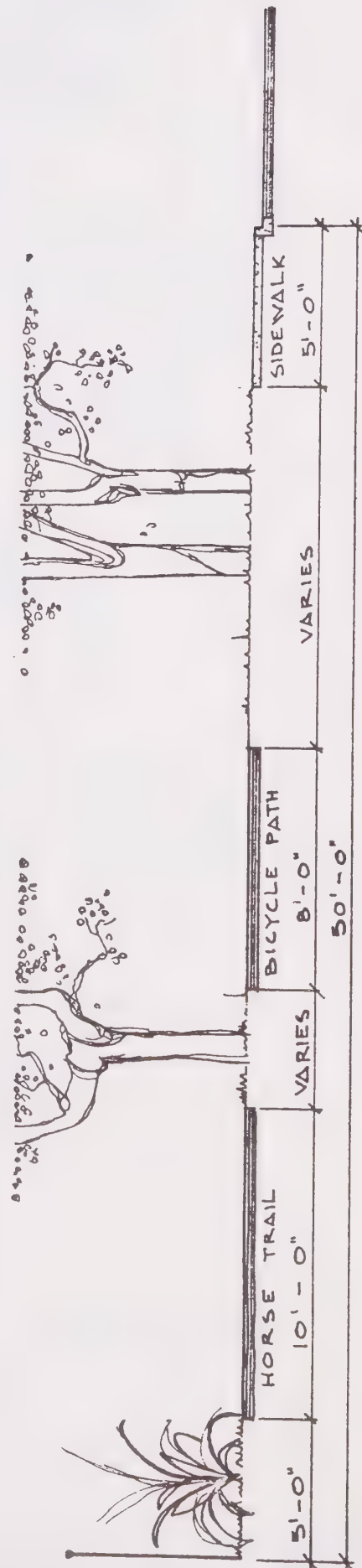
# TYPICAL TRAILWAY CROSS SECTIONS



### AN ARROYO TRAILWAY



### ISABEL TRAILWAY



### QUEZALTENANGO TRAILWAY

TYPICAL TRAILWAY CROSS SECTIONS

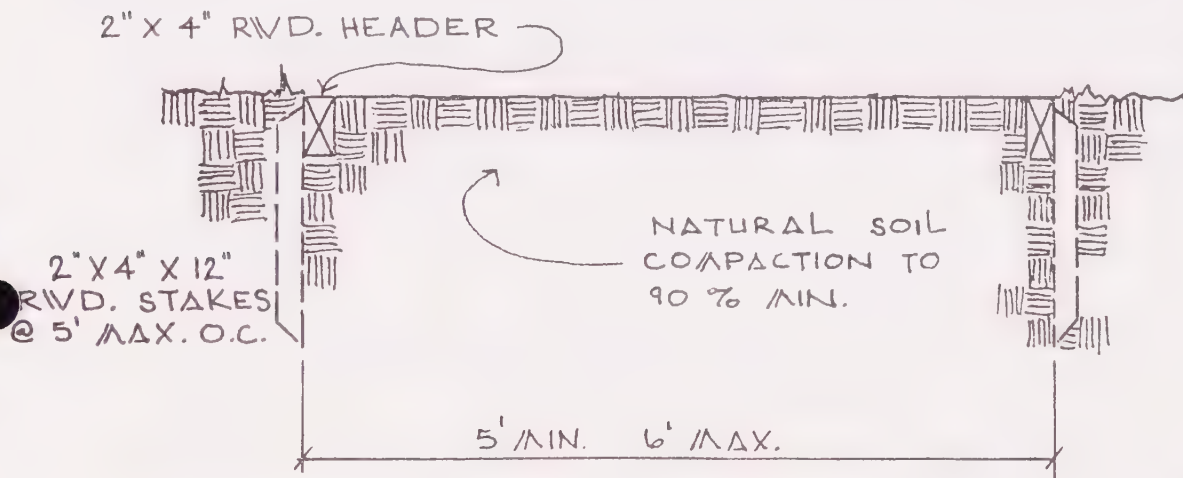
## PART II

### SPECIFIC TRAILWAY STANDARDS

#### A. Header Board Soil Hiking Trail Standards

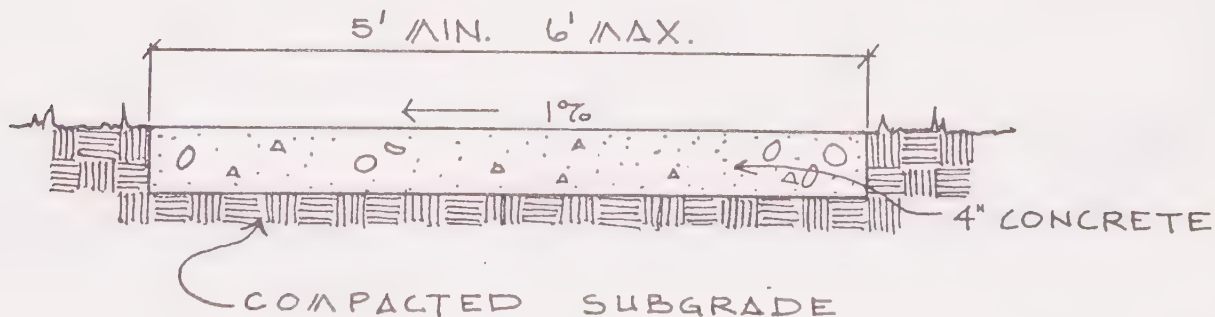
A header board soil trail shall be a minimum of five (5) feet wide, measured from the outside of the headers. The maximum width of a header board soil trail shall be six (6) feet measured the same as the minimum soil trail.

The header boards shall be 2" x 4" construction heart rough redwood with 2" x 4" x 12" stakes at 5' o.c. maximum. The soil shall be brought to 90% compaction.



#### B. Trailway Paved Walking Trail Standards

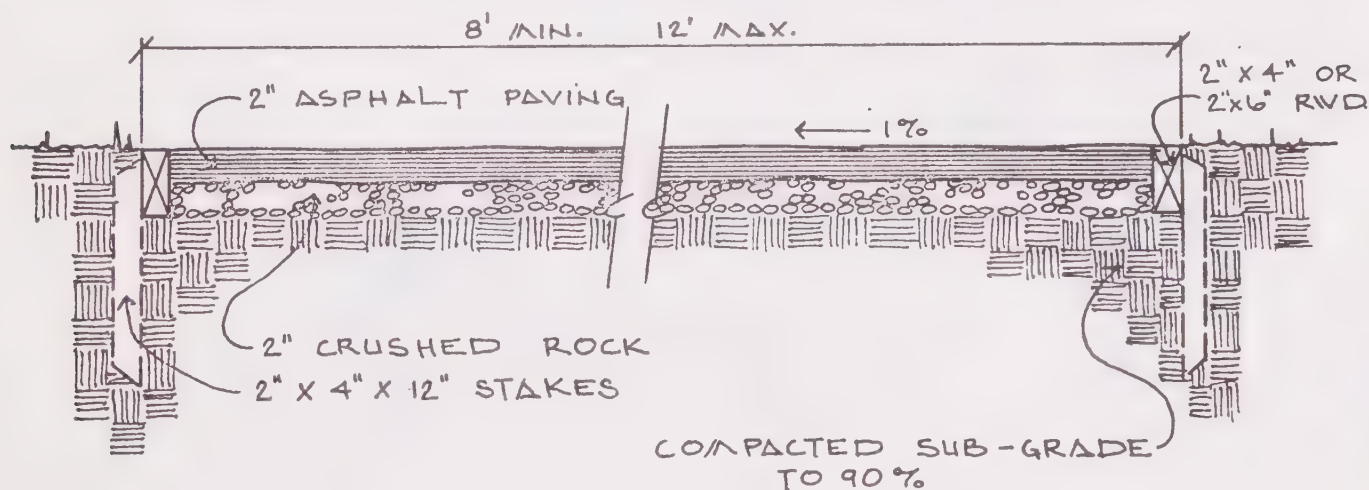
The paved walking trail shall be a minimum of five (5) feet wide, with a maximum of six (6) feet in width.



### C. Asphalt Bicycle Trail Standards

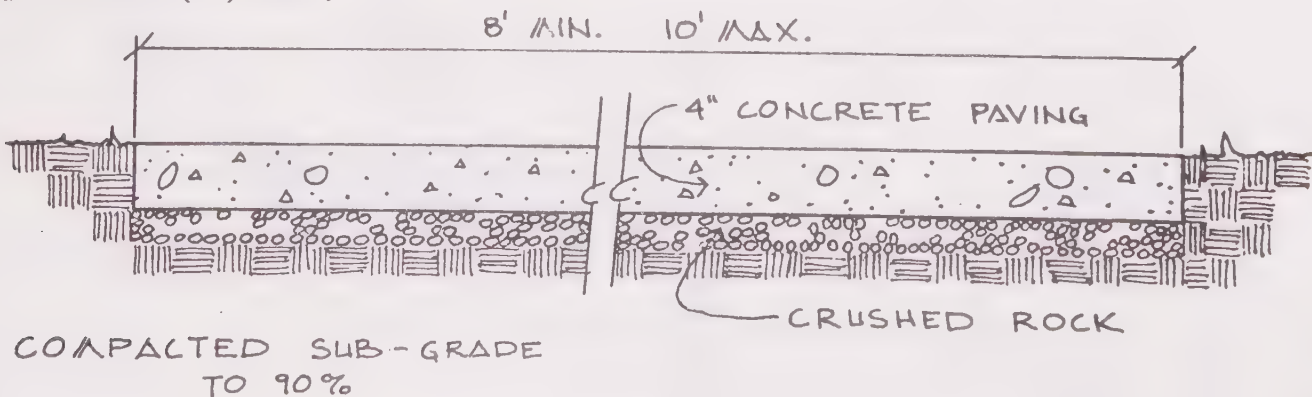
The asphalt paving shall be contained by permanently installed 2" x 4" or 2" x 6" rough redwood header boards with 2" x 4" x 12" stakes at 5' o.c. maximum.

The minimum width of an asphalt bicycle path shall be eight (8) feet measured from the outside of the headers. In no case will any bicycle trail be less than eight (8) feet. The maximum width of an asphalt bicycle path shall be twelve (12) feet measured the same as the eight foot path above.



### D. Concrete Bicycle Path Standards

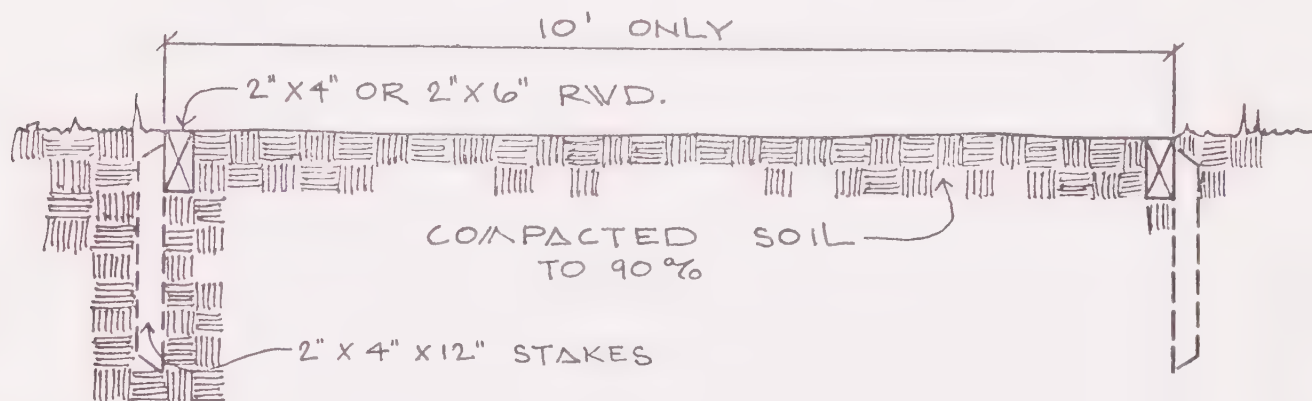
The concrete bicycle path shall conform to the same construction standards as the concrete hiking trail (sidewalk) but shall be a minimum width of eight (8) feet. The concrete bicycle path shall never be less than eight feet in width. The maximum width of a concrete bicycle path shall be ten (10) feet.



E. Header Board Soil Horse Trail Standards

A header board soil horse trail shall be a minimum and a maximum of ten (10) feet wide measured from the outside of the headers.

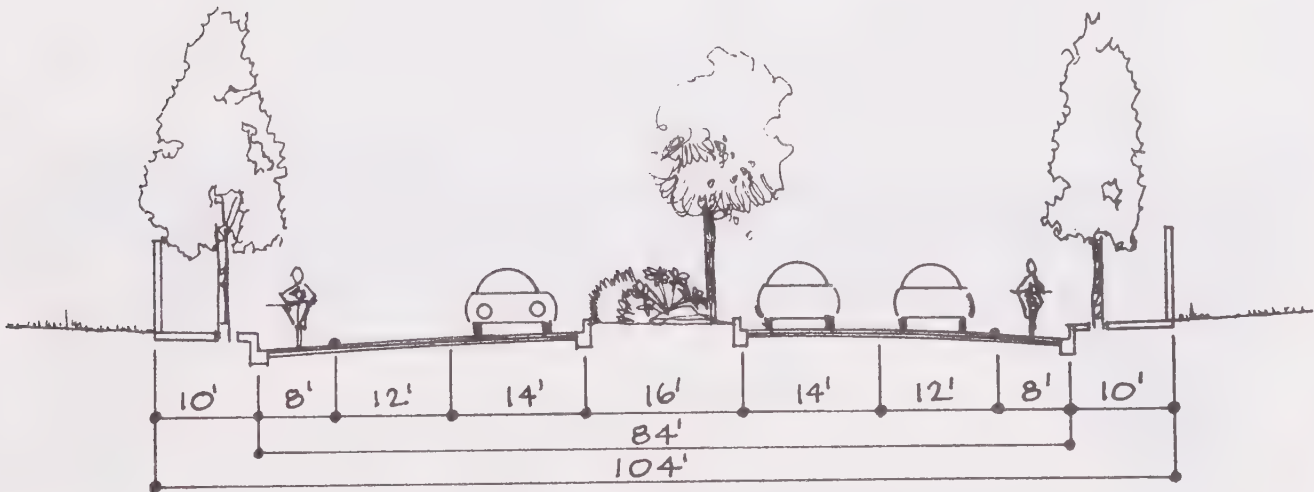
The header boards shall be 2" x 4" or 2" x 6" construction heart rough redwood with 2" x 4" x 12" stakes at 5' o.c. maximum. The soil within the headers shall be brought to 90% minimum compaction.



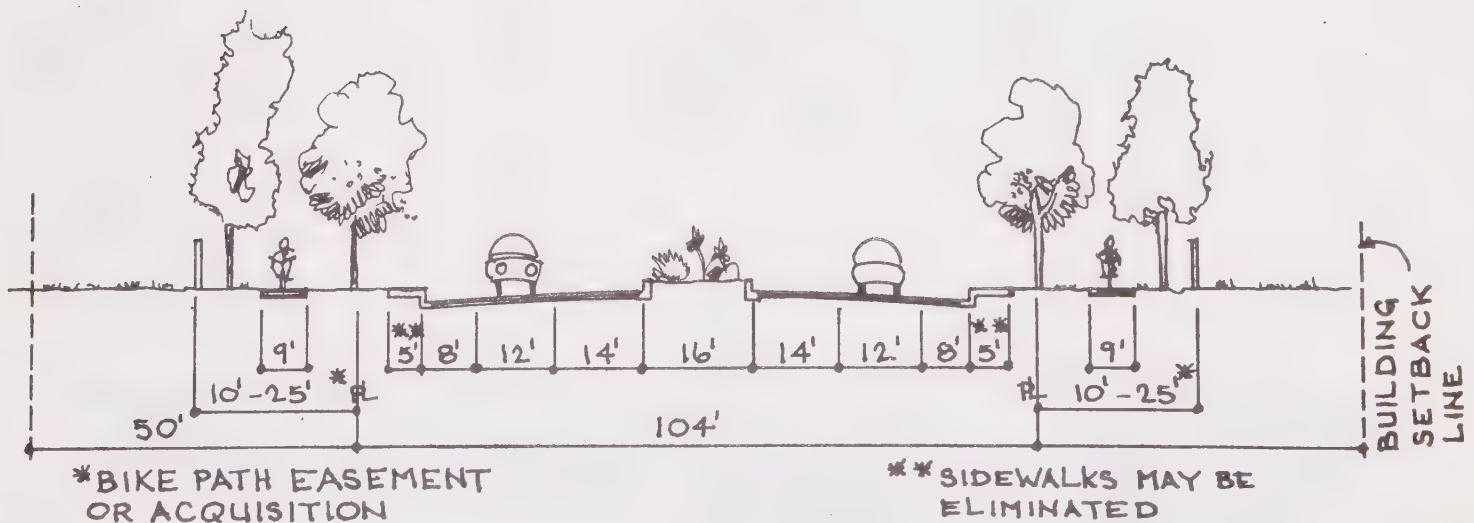
# PART III

## BICYCLE PATH CROSS SECTION DIAGRAMS

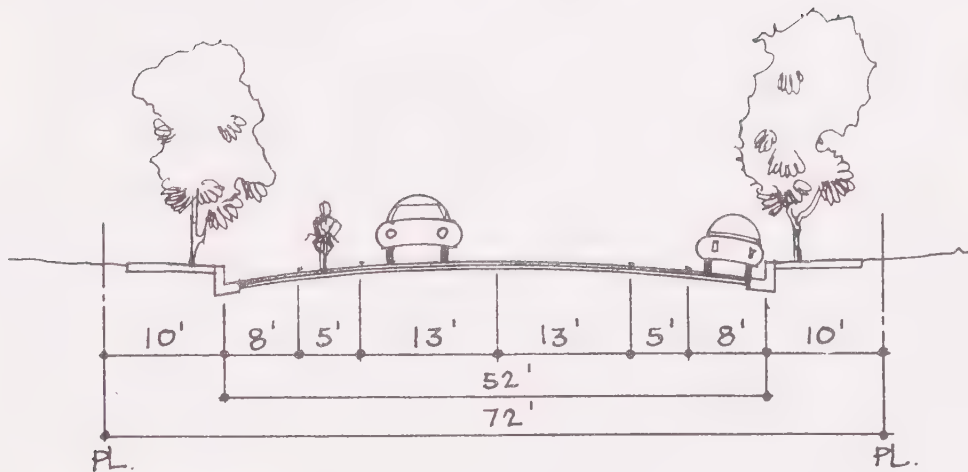
Below and on the following pages are bicycle path cross sections showing bicycle path locations on different types of streets, and a detailed drawing of the transition area of bicycles from the set-back area to the street.



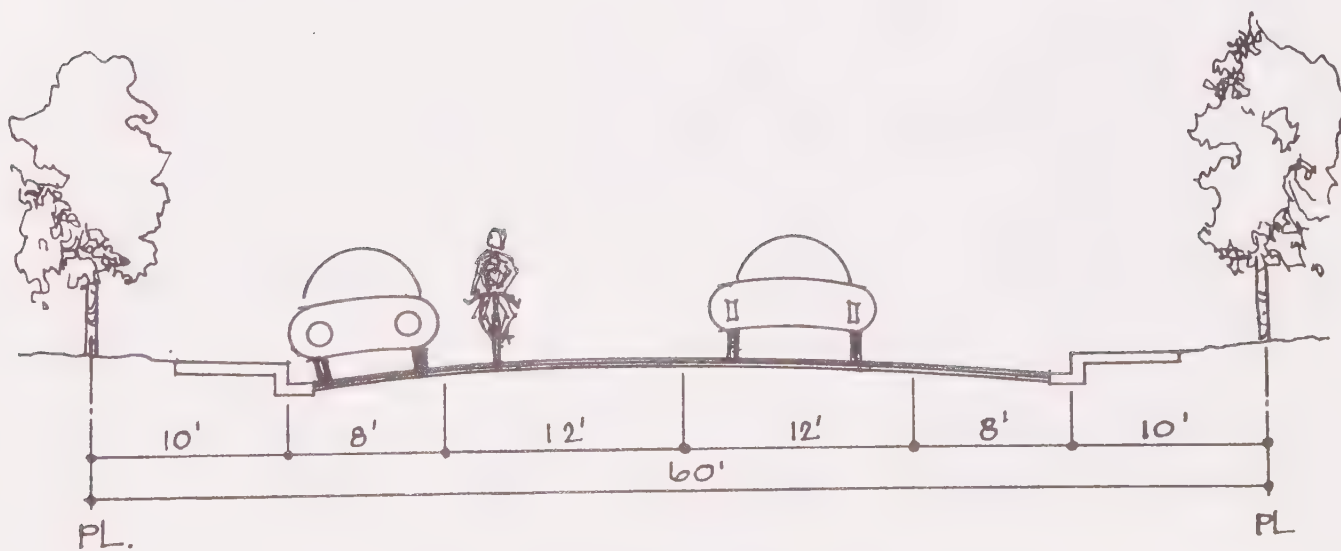
BIKE LANES - BACKING LOT TREATMENT



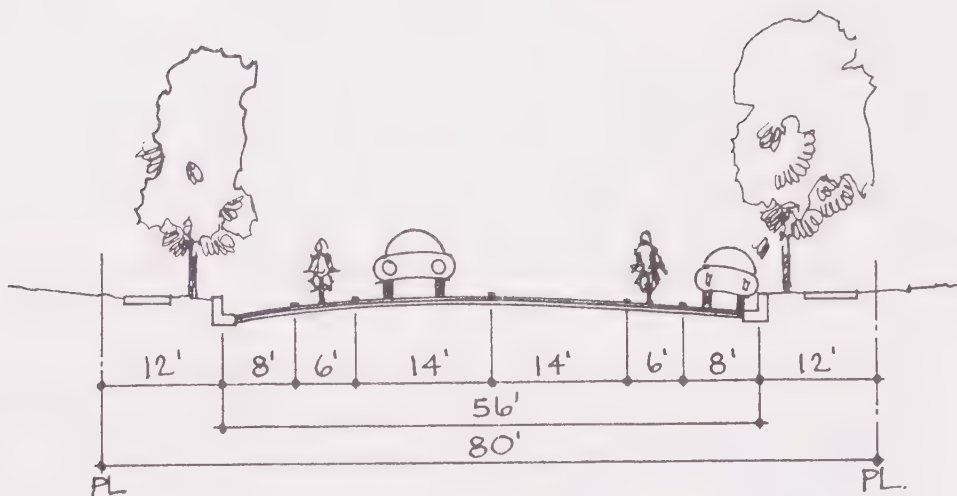
BIKE PATHS IN BUILDING SET-BACK AREA - BACKING LOT TREATMENT



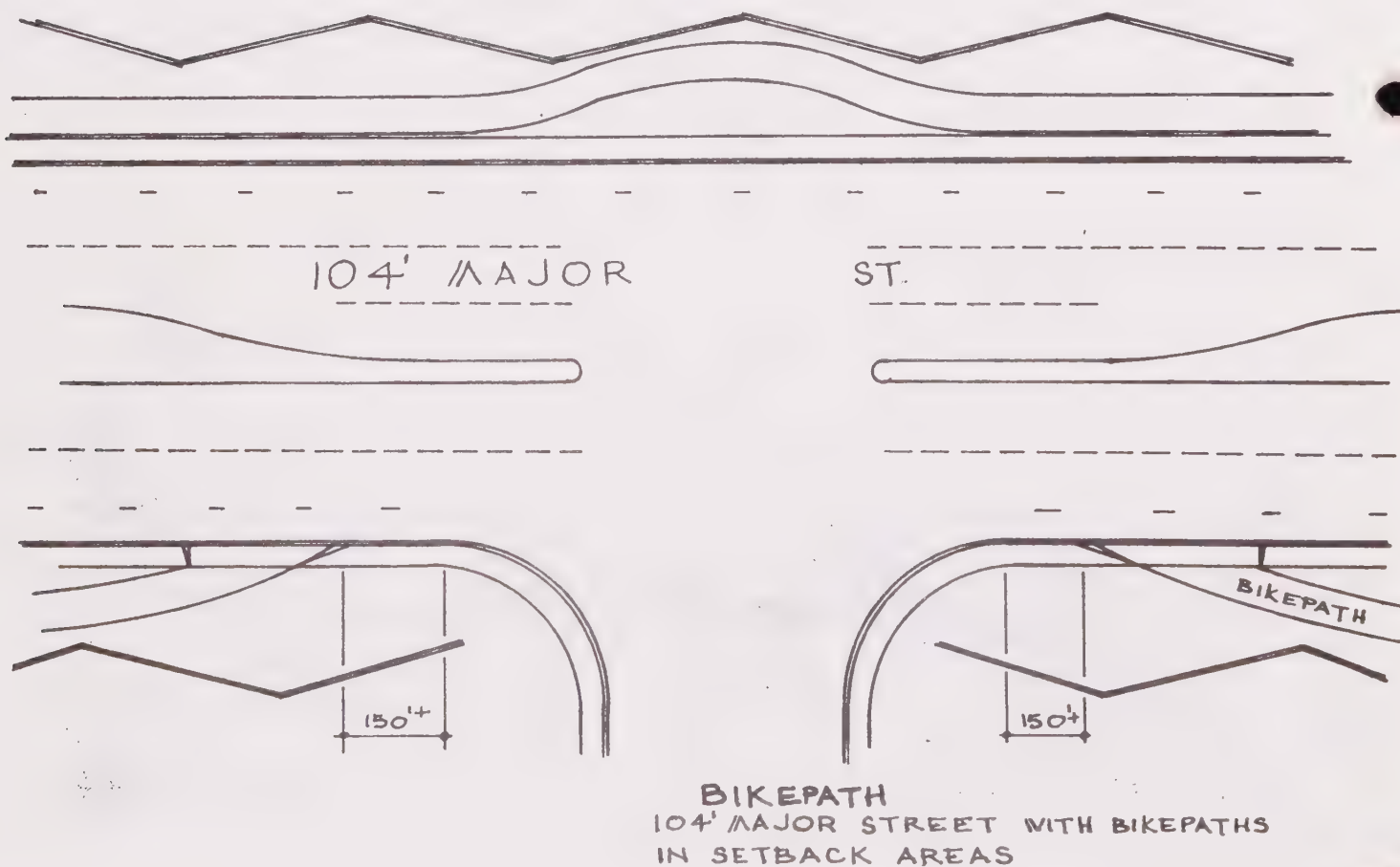
BIKE LANES - COLLECTOR STREETS



BIKE LANES - SECONDARY (RESIDENTIAL) STREETS

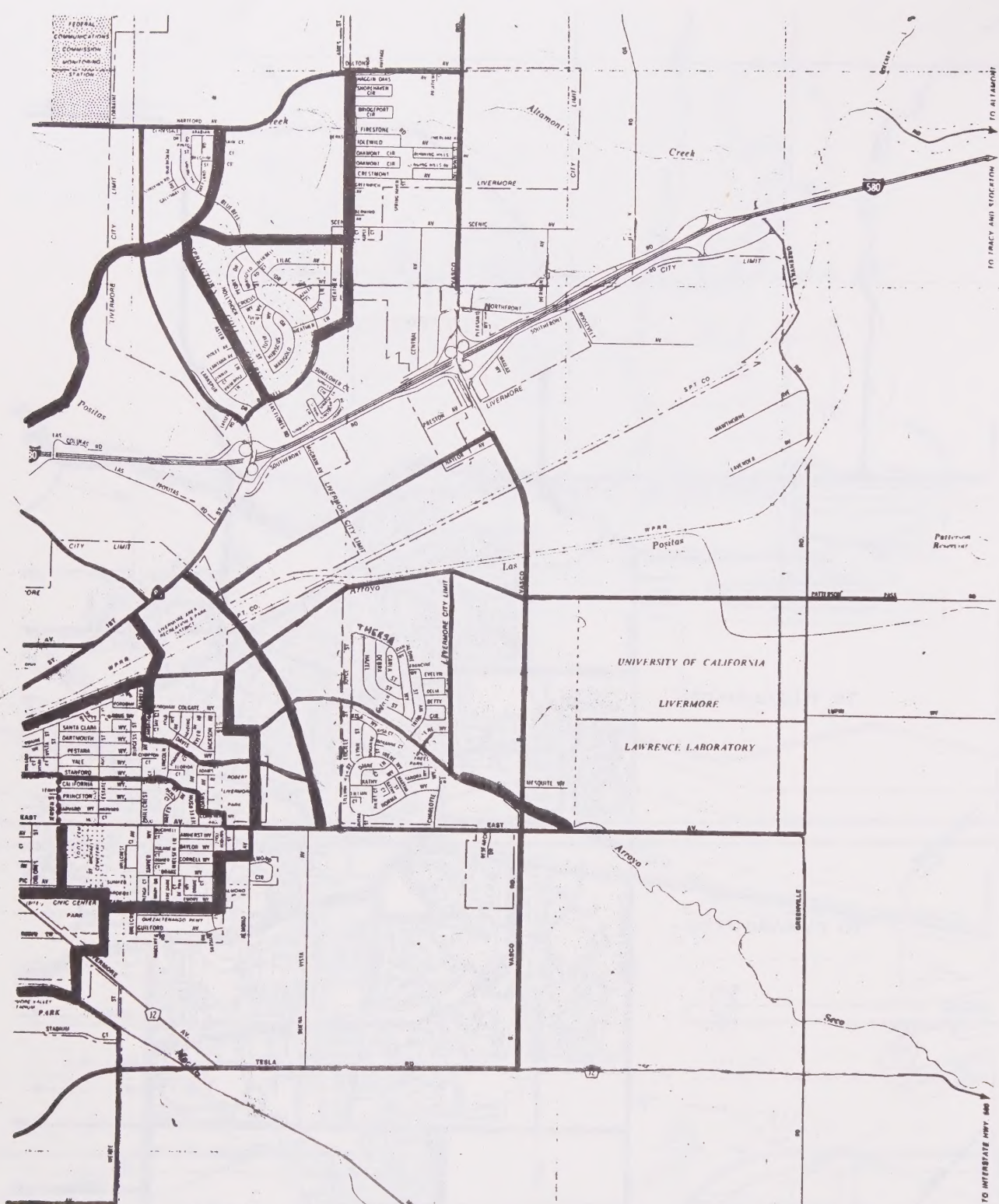


BIKE LANES - OLDER SECTIONS OF THE CITY



TRANSITION OF BIKE PATH FROM SET-BACK AREA TO STREET





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# LIVERMORE BICYCLE ROUTE PLAN

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